Variant 2: An Extra-Launch Target appears near the middle of the upper wall. It changes position each round and increases in value every third round. Extra launches are awarded and the turn ends when the Target is hit. Because extra launches are more desirable at some times in the game and less in others, and because the position of the Extra-Launch Target is both changing and predictable, timing now becomes a central strategic issue. (The Extra-Launch Target is used in all the remaining variants.)

Variant 3: Two more Bumpers appear on each side of the board, and the match now takes three-to-five games to conclude. Because of the longer match structure, the automatic handicapping system has a much stronger effect on the outcome of the game. Players with unequal skills will find that this variant will produce a more equally challenging game. Unless the difference in ranking is extremely high, it will be almost impossible for one player to win a match without losing at least one game.

Because a launch ricochets off Bumpers as well as pieces and walls, Variants 3 to 5 tend to produce the most spectacular and surprising results. There are only five objects on the board that can stop the launch (the Launchers and the Extra-Launch Targets), and the consequences of a launch during the first round of this and the following variants are extremely challenging to predict. The position of the Extra-Launch Target is central in determining the results of the launch.

Variant 4: In this and the following variant, the number of launches available to each Launcher has been reduced to three. Each game is about 40% shorter. With fewer launches available, each one is more important, and the Extra-Launch Target again takes on more strategic significance. Generally, more moves are needed for a successful launch, which increases the demands on the strategic skills of the players and tends to make the game a bit more serious. It is recommended, therefore, to players with a relatively small difference in rating (less than 1000 points).

Variant 5: The playing field is empty of position markers. Without these markers, it is very difficult to trace the path of a launch, and a new level of perceptual challenge is added. In addition to this dramatic change, a Launcher, once hit, is out of play for the remainder of the game. The player with both Launchers still operating can aim for the Extra-Launch Target and continue to replenish supplies. The player with only one functioning Launcher can no longer gain launches from the Extra-Launch Target, but can more easily end the game while still ahead in points. The strategic depth and perceptual challenge of this variant make it of interest to all players, experienced or novice.

THE COMPUTER OPPONENTS

Each of the computer opponents plays differently. Some are better on some variations, others on others. Some play better on a certain variation when they get to go first, some when they don't. They provide an interesting, not necessarily unbeatable, group of opponents to play with, giving the *Ricochet* player a varied enough opposition to develop and practice sophisticated strategies. Since there are four different opponents and five different variants, and since each game is different when the other player goes first, the solitary player is able to become familiar with the subtleties of *Ricochet* and to experience them on many different levels of challenge.

FOR FURTHER STUDY AND REFLECTION

Though it is possible to play and even win a game or two of *Ricochet* by sheer luck and abandoned launching, there is also the possibility of becoming a better player. The more you play *Ricochet*, the more you will be able to anticipate the results of your moves. You will begin to be able to envision the path of a launch for many ricochets. It is reasonable to assume that those who go on to become masters still have only a vague idea about the implications of different positions, and probably nothing more than a good feel for the strategic properties of different configurations of pieces and moves.

Despite our recommended and obviously more enlightened approach to mastering *Ricochet* through play, there are those who might benefit from studying the games of their past as well as those of others. It is to this person that the following is dedicated.

Notation

Players may wish to record their moves for later study. The easiest notation to use is merely a step-by-step record of the keys pressed to make each move. In the following example:

Left:	*Right:*
UA	DI
T	

we see that *Left* moved first, beginning by moving piece "A" up. *Right responded moving "I" down. Left* then launched from the top. Because there are no random events in the game, there is no reason to indicate what piece or target was hit.

In the following example:

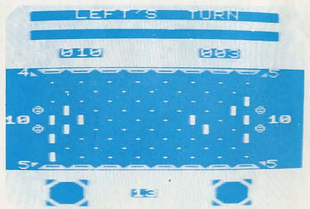
Left:	*Right:*
	LLJK
B	

we see that *Right* moved first, moving pieces "L," "J," and "K" to the left, and *Left* responded by launching from the bottom Launcher.

Sample Games

Right wants to play Variant 1. *Left* chooses to go first. Launching from either top or bottom would lead to similarly unpleasant results: ten points for *Right* and three points and only one Launcher for *Left*.

Left moves DCBA. This is quite a reasonable opening. Why *Left* chose to move all three pieces is not immediately apparent. What is apparent is that *Right* is now facing the same problem *Left* had to deal with. *Right* moves LLK, leaving the position of the board as follows:



This also is quite a reasonable move, opening interesting possibilities for a subsequent launch from either top or bottom. Of the two, the bottom launch looks the better, yielding a rewarding sixteen points and the even more rewarding, though temporary, incapacitation of *Left's* bottom launcher. The top launch nets a mere four points, but remains a viable alternative should *Left* attempt to block the bottom launch with a move.

Left launches from the top. This is a rather spectacular launch, and praiseworthy in that *Left* winds up ten points ahead as a result. It ricochets off of H, J, G, then back to ricochet off of C, then back to J and G, then it hits a Bumper, netting an additional ten points, then it continues to hit J, G, C, and, unfortunately, *Left's* bottom launcher, giving *Right* ten undeserved points. But, even though a Launcher has been lost, advantage has been gained. The score stands at 20 for *Left* and 10 for *Right*.

(The same launch, given the identical position in any of the other four variants of *Ricochet*, would yield a significantly different result, because after it hit H, J, G and C, it would hit the Extra-Launch Target and stop.)

Right, as expected, launches from the bottom. He hits K, J, H, and *Left's* Launcher, scoring a mere 13 points, but knocking out *Left's* only remaining Launcher, thus ending the game while three points ahead.

By ending the game so abruptly, and with such a small advantage, *Right* was able to earn a match point while keeping the target values the same.

Death by spectacle.

* * * * *

Players of *Ricochet* often embark on some rather remarkable visual odysseys. The odd thing about these remarkable visual odysseys is that they are sometimes so remarkable that a player is often tempted to forsake the pursuit of strategic wisdom so that he may better embrace the questionable charms of sheer graphic splendor. The game below illustrates the consequences.

This game can be played on Variants 3, 4 or 5. For those who wish to focus on the visual delights of it all, Variant 5 is recommended. For those who are actually interested in trying to understand what's happening, Variants 3 or 4 would prove more useful. Both groups would be wise, before reading any further, to follow this game on the computer.

To follow the game, select the variant, and ask for a human vs. human game. Ratings aren't significant, so, when asked for ratings, enter anything you wish. *Left* goes first.

Left moves DC. *Right* responds with DI.

Left launches from the top, ricocheting off of K, L, J, and C, getting four points and then hitting the Extra-Launch Target. Not bad.

Right launches from the top, ricocheting off E, F, D, I, A, D, and back to I, sadly hitting the wrong Bumper and earning *Left* ten points while *Right* has only seven so far, but going on to hit K and then even further to hit *Left's* top Launcher for a gain of 18 points to *Left's* mere 14. Not bad at all.

It is now *Left's* turn. *Left* launches from the bottom. The consequences of this launch are so spectacular, so truly video that we herein abandon our attempt to depict them via printed word. Suffice it to say that those who have witnessed this event are known to speak knowledgably of the "forty-five-bounce launch," and wistfully of "the launch that faced a thousand hits," and, of course, "the launch break."

RICOCHET

Because it is a unique game, designed solely to be played on the computer, *Ricochet* is quite unlike any strategy game you have ever played. You will move pieces and clusters of pieces that change orientation each time they are hit. You will make launches that ricochet off the pieces and edges of the board with the computer-animated, gravity-and-friction-free precision of a physicist's dream. You will make calculations that can lead you into contemplating the twenty-bounce launch, the fifty-bounce launch, and the ultimately, infinitely scoring launch.

When the first game is over, you will discover a unique match structure that would be virtually impossible to implement without the unbiased and accurate scrutiny of a computerized referee. It will be a true match, with the computer changing the conditions of each game in the series, giving each player the fairest opportunity to find a challenge that matches his or her strategic skills. There will be a time pressure, as in all tournament play; but you will be timed by a "smart clock" that speeds up and slows down in response to the way the game is played. The ratings that you earn for playing against master or novice are adjusted by the computer, so they accurately reflect and compensate for differences between skills. You can lose a match against a superior player but, if you play well enough, still earn a higher rating.

The challenge that awaits you is as deep as you want to take it. There are five different variants to explore and four different computer opponents to play against. The strategies that you develop in mastering one variant against one computer opponent will not necessarily work against a different computer opponent or in a different variant. You will gain new insights into the dynamic properties of *Ricochet* with each combination of variant and opponent you play.

CREDITS

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OBJECT: To score more *match* points than your opponent (human or computer).

SCORING

Game Points

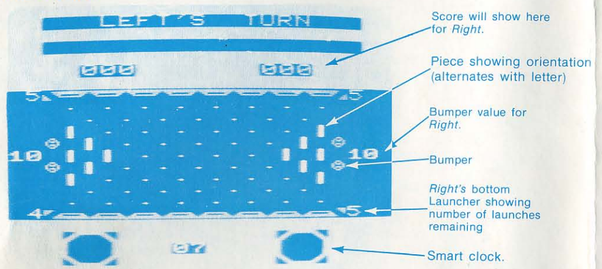
FOR HITTING ANY PIECE: one point
FOR HITTING YOUR OPPONENT'S BUMPER OR LAUNCHER:
First Game: ten points
Next Games in Match: ten points plus

(Bumper values are indicated on the left and right sides of the playing field. Bumper values increase from game to game within a match, depending on differences in score. See *Match Structure*.)

Match Points

FOR WINNING THE GAME: one point plus one more point for every ten game points you won by

THE DISPLAY



Left *(or human)* side of the board — Right *(or computer)* side of the board

The board at the outset of the game shows 5 launches in each Launcher, two 10-point Bumpers on each side, and all pieces in their original (vertical) position. Left *is being prompted to play.*

Pieces

A piece is a letter (A-L).

The objects that extend from the letter indicate the orientation of the piece: vertical or horizontal. The piece changes in orientation every time it is hit.

NOTE: Only the *letter* is hit; the objects on either side are there to help you figure out which way a launch will ricochet.

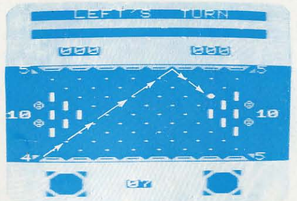
Launchers

Launchers are in the four corners of the board.

Left player has control over the Launchers on the left. Right player or *computer* has control over the Launchers on the right.

Numbers indicate how many launches remain in each Launcher.

When a Launcher is hit, the number is replaced by a Bumper symbol; points for hitting a Bumper are given to the launching player; and in all but Variant 5, the Launcher that was hit is inoperable for two complete turns.



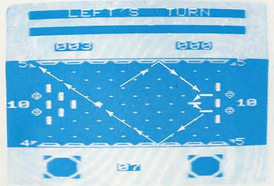
Left *did not move but launched from the bottom (leaving 4 launches in* Left's *bottom Launcher). The launch followed the dots diagonally in a "northeast" direction, ricocheted off the top boundary at a 90° angle, and is just about to hit* Right's *"J" piece.*

A Launch

A launch always begins at the Launcher and travels diagonally. It ricochets at a 90° angle.

A launch ricochets north to south (or vice versa) off the walls and horizontal pieces, and east to west (or vice versa) off the vertical pieces and bumpers.

A launch continues until it leaves the playing board, hits an Extra-Launch Target, or hits a Launcher.



After ricocheting off pieces "J," "K," and "L" (thereby changing their orientation and earning 3 points), the launch then ricocheted off the bottom boundary and is headed for Left's *top Launcher. This move will incapacitate that Launcher for two complete turns.*

Bumpers

When a Bumper is hit, the launch pauses, points are scored, and the launch continues.

When a game is won, there are only *half* as many Bumpers on the loser's side in the next game.

The match ends when a player who has only one Bumper on his/her side loses.

Extra-Launch Target

A number or object with a number appears on the walls. The number moves along the wall, changing position every round and changing value every third round. (Variant 1 does not have Extra-Launch Targets.)

WHEN THE TARGET IS HIT:

The turn ends and extra launches are loaded into the Launcher that was *not* used to make the launch. The number on this Launcher changes accordingly.

STARTING THE GAME

Loading the Program: See special loading instructions.

Enter Variant Number (1-5): Variant 1 is recommended for beginning players. Variants 2-5 each require a change in strategy, though the game is essentially unchanged. (See *The Variants*.)

Do You Want to Play the Computer? Answer **Y** for Yes, **N** for No.

IF YES:

ENTER COMPUTER OPPONENT NUMBER (1-4): Different computer opponents are more difficult to defeat on different variants. Who goes first also makes a difference.

ENTER HUMAN RATING: New players enter **0**; otherwise, enter rating given at the conclusion of the last match. Then press the **RETURN** key.

SHALL HUMAN PLAY FIRST OR SECOND?: Enter **F** for First, **S** for Second.

IF NO:

ENTER LEFT RATING: New players enter **0**; otherwise enter rating given at the conclusion of last match, then press the **RETURN** key.

ENTER RIGHT RATING: Same as above.

SHALL LEFT PLAY FIRST OR SECOND?: Enter **F** for First; **S** for Second.

PLAYING THE GAME

A Game: A game ends as soon as one player has run out of launches.

A Match: A match ends as soon as one side has run out of Bumpers. Each time a new game begins, there are fewer Bumpers on the losing player's side of the field. (See *Match Structure*.)

A Turn: A player, on his or her turn, may *either* move *or* launch, but not both.

LAUNCHING: You have only one launch per turn.

MOVING: One or more pieces may be moved per turn. A piece cannot move diagonally, and only *one* direction can be chosen per turn. A piece cannot move onto another piece; a piece can only move one space at a time; and each piece can only be moved once per turn.

Left-player pieces: A, B, C, D, E, F
Right-player pieces: G, H, I, J, K, L

Using Keyboard Commands:

LAUNCHING:

Press the **S** key.
You will see the prompt,
TOP OR BOTTOM LAUNCHER?
Press **B** to launch from bottom.
Press **T** to launch from top.
Press any other key, if you change your mind and don't want to launch.

MOVING:

Press the **M** key.
You will see the prompt,
DIRECTION?
Press **U** for up.
Press **D** for down.
Press **R** for right.
Press **L** for left.
You will see the prompt,
PIECE?
Type in the appropriate letter for each piece you want to move. When you have finished moving, press the **Space Bar**.

RATING: A new rating is given to players at the conclusion of the match. This rating reflects how many points the match was won by; how many games it took to finish the match; and how highly each player was rated when the match began.

THE SMART CLOCK: A player is given bonus points when the *opposing* player takes too much time. The amount of time that is considered "too much" changes according to the *average* amount of time it takes the opponent to move. *The more quickly ONE player moves, the LESS time the OTHER player has.* The amount of time you take to make a move, therefore, is in itself a strategic decision. If you make a move that is difficult enough to force your opponent to stop and think, you gain both points and time. By the end of the last game in a match, overly diabolical players may find that it is no longer possible to complete a move within the time limit.

MATCH STRUCTURE: At the conclusion of each game in a match, the Bumpers that are on the *winner's* side of the board increase in VALUE, and the Bumpers on the *losing player's* side of the board decrease in NUMBER. The next game in the match is therefore harder for the winner and easier for the loser. The winner has fewer Bumpers to shoot for, and the loser gets more points for hitting a Bumper.

The design of the board is changed just enough to force the winner to develop a different strategy. The number of Bumpers on the winner's side of the board, however, doesn't change. This means that the strategies that worked during the last game will still be effective, and the loser will be able to take advantage of whatever he or she has learned. The loser of the previous game also gets more points for hitting the opponent's Bumpers.

The value of the Bumpers changes according to the difference between the players' scores for the previous game by one point for every ten. Outscoring your opponent, though obviously the goal of the game, is now also a strategic element. The player who wins one game begins the next at a proportionally greater disadvantage. To win the match, you might have to lose the game. On the other hand, the more you win by and the sooner you complete the match, the higher your rating.

THE VARIANTS

Variant 1: Each player has five launches per Launcher. When the game begins, each player has two Bumpers, so a match consists of only two or three games. This is a good variant for two evenly matched players or for a new or low-ranking player against one of the computer opponents.